SEMIANNUAL REPORT

ON

CONTAINERS

1210-C-20

Contract No. RD-88
Task Order No. 20

Total Funds	$9,909.00
Unexpended Funds	$3,272.52
Per Cent Complete	75%

Project Engineers:

Technicians:

25X1

25X1

This project involves the design of a quick-disposal undergarment gear which presents two major tasks: first, to locate containers to blend in with the body contours, the other is to develop rapid and simple removal technique.

Initially, two approaches were suggested to modify the gear. The first involved the location of containers on or close to the abdominal and chest regions. The second was to make possible use of the cavities of the back, chest, pelvic area, and legs.

In regard to the first approach, a foam rubber vest was suggested as being a possible means of holding the grouped containers. The containers were to be placed on the chest and abdominal surfaces of a dummy in the best distribution possible and surrounded with a clay which was formed to fit in with the body lines. This form would add to the chest dimension, but proportioned in such a way that it would not be noticed when covered.

Evaluation of a number of elastomeric foams brought out the advantage of using a polyurethane resin because of its room temperature catalyst system and the wide ranges of foam density that can be achieved with varying proportions of catalyst. Also, this type of resin can be formed in a closed male-female type of mold, such as formed over the dummy chest surfaces and the container and clay filler.

With regard to the second task of the project, that of obtaining a quick removal system, the snaps of the original cloth vests have been shelved for a set of elastic straps which wrap around the upper body and have one central release at the lower rib cage.

A set of polyester and fiberglas molds were fabricated using a mannequin as a model. The inside mold half conformed to the mannequin chest contour, while the outside half contained the contour of the sculptured clay surrounding the containers.

Following the fabrication of the first mold and the pouring of three foam prototypes from the mold, the prototype vests were studied and found to be too bulky around the chest. However, the vests were comfortable to wear and difficult to recognize when worn under clothing. New molds were made from a new mannequin form of an "average American male" in the same manner as the original molds.

In the new molds, the larger containers were taken away from the chest portion of the mold and placed on the sides of the model near the lower set of ribs to eliminate the chest bulge which occurred in the first prototype.

Vests, foamed from the latest molds, were compared with the original vests. The original vests were found to be the most acceptable as the shifting of the large blocks to the lower rib areas created too great an amount of bulge in the waistline.

Since it had been determined that the original molds were the only ones now under consideration, minor alterations were made to them to allow better foam consistency. Aluminum plugs were inserted into the mold form to give the vests a webbed appearance and create more flexibility. All mold surfaces were wax-coated to permit easier separation of the vest from the mold halves.

Future Work

Various methods of mixing and pouring the foam to improve the foam density will continue to be studied. The discomfort experienced while wearing the vest, with or without the units in place, will be investigated.